

# Technology Transfer

## Network and Affiliations

**N**ASA's Technology Transfer Network strives to ensure that the Agency's research and development activities reach the widest possible audience with the broadest impact. The network serves as a resource of scientific and technical information with real-world applications for U.S. businesses interested in accessing, utilizing, and commercializing NASA technology.

# FY 2003 Technology Transfer Network and Affiliations

The NASA Technology Transfer Partnership program sponsors a number of organizations around the country that are designed to assist U.S. businesses in accessing, utilizing, and commercializing NASA-funded research and technology. These organizations work closely with the Technology Transfer Offices, located at each of the 10 NASA field centers, providing a full range of technology transfer and commercialization services and assistance.

## Technology Transfer Network

The **National Technology Transfer Center** <<http://www.nttc.edu>>, located on the campus of Wheeling Jesuit University in Wheeling, West Virginia, was established by Congress in 1989 to strengthen American industry by providing access to more than \$70 billion worth of federally funded research. By helping American companies use Federal technologies, the NTTC helps them manufacture products, create jobs, and foster partnerships between Federal laboratories and the private sector, universities, innovators, and economic development organizations. From that mission, the NTTC has grown into a full-service technology commercialization center. In addition to providing access to Federal technology information, the NTTC provides technology commercialization training; technology assessment services that help guide industries in making key decisions regarding intellectual property and licensing; and assistance in finding strategic business partners and electronic business development services.

The NTTC developed a leads management system for NASA that is the formal reporting and tracking system for partnerships being developed between NASA and U.S. industry. The leads system allows all members of the NASA Technology Commercialization Team to have an easy-to-use and effective tool to create and track leads in order to bring them to partnerships. The NTTC also utilizes the expertise of nationally recognized technology management experts to create and offer technology commercialization training. Course topics range from the basics of technology transfer to hands-on valuation, negotiation, and licensing. Courses are developed at the NTTC and around the country. In addition, online courses, supporting publications, comprehensive software applications, and videotapes are also available.

**NASA TechTracS** <<http://technology.nasa.gov>> provides access to NASA's technology inventory and numerous examples of the successful transfer of NASA-sponsored technology for commercialization. TechFinder, the main feature of the Internet site, allows users to search technologies and success stories, as well as submit requests for additional information. All NASA field centers submit information to the TechTracS data-

base as a means of tracking technologies that have potential for commercial development.

Since their inception in January 1992, the six NASA-sponsored Regional Technology Transfer Centers (RTTCs) have helped U.S. businesses investigate and utilize NASA and other federally funded technologies for companies seeking new products, improvements to existing products, or solutions to technical problems. The RTTCs provide technical and business assistance to several thousand customers every year.

The network of RTTCs is divided as follows: **Far West** (AK, AZ, CA, HI, ID, NV, OR, WA): The **Far West Regional Technology Transfer Center (FWRTTC)** <<http://www.usc.edu/dept/engineering/TTC/NASA>> is an engineering research center within the School of Engineering at the University of Southern California in Los Angeles. Using the Remote Information Service to generate information from hundreds of Federal databases, FWRTTC staff work closely with businesses and entrepreneurs to identify opportunities, expertise, and other necessary resources. The FWRTTC enhances the relationships between NASA and the private sector by offering many unique services, such as the NASA Online Resource Workshop, NASA Tech Opps, and links to funding and conference updates.

**Mid-Atlantic** (DC, DE, MD, PA, VA, WV): The **Technology Commercialization Center (TeCC)** <<http://www.teccenter.org>>, located in Newport News, Virginia, coordinates and assists in the transfer of marketable technologies, primarily from Langley Research Center, to private industry interested in developing and commercializing new products.

**Mid-Continent** (AR, CO, IA, KS, MO, MT, ND, NE, NM, OK, SD, TX, UT, WY): The **Mid-Continent Technology Transfer Center (MCTTC)** <<http://www.mcttc.com/>>, under the direction of the Technology and Economic Development Division of the Texas Engineering Service, is located in College Station, Texas. The MCTTC, which provides a link between private companies and Federal laboratories, reports directly to the Johnson Space Center. The assistance focuses on high-tech and manufacturing companies that need to acquire and commercialize new technology.

**Mid-West** (IL, IN, MI, MN, OH, WI): The **Great Lakes Industrial Technology Center (GLITeC)** <<http://www.glitec.org>>, managed by Battelle Memorial Institute, is located in Cleveland, Ohio. GLITeC works with industries primarily within its six-state region to acquire and use NASA technology and expertise, especially at the Glenn Research Center. Each year, over 500 companies work with GLITeC and its affiliates to identify new market and product

opportunities. Technology-based problem solving, product planning and development, and technology commercialization assistance are among the services provided.

**Northeast** (CT, MA, ME, NH, NJ, NY, RI, VT): The **Center for Technology Commercialization (CTC)** <<http://www.ctc.org>> is a nonprofit organization, based in Westborough, Massachusetts. Covering New England, New York, and New Jersey, the CTC currently has eight satellite offices that form strong relationships with Northeast industry. Operated by the CTC, the NASA Business Outreach Office stimulates business among regional contractors, NASA field centers, and NASA prime contractors.

**Southeast** (AL, FL, GA, KY, LA, MS, NC, SC, TN): The **Southeast Regional Technology Transfer Center (SERTTC)** <<http://www.edi.gatech.edu/nasa>> at the Georgia Institute of Technology facilitates and coordinates private industry interests in the transfer and commercialization of technologies resulting from NASA's space and Earth science research. Assistance is also provided in Small Business Innovation Research and Small Business Technology Transfer applications, as well as the establishment of connections to specialized research needs within NASA research and development centers nationwide.

#### NASA Incubator Programs

Ten NASA incubators are included within this network of programs. They are designed to nurture new and emerging businesses with the potential to incorporate technology developed by NASA. They offer a wide variety of business and technical support services to increase the success of participating companies.

**Ames Technology Commercialization Center (ATCC)** <<http://technology.arc.nasa.gov/small-business.html>>, located in San Jose, California, provides opportunities for start-up companies to utilize NASA technologies. The center uses a laboratory-to-market approach that takes the technological output of Ames' laboratories and pairs that technology with appropriate markets to create and foster new industry and jobs. The incubator helps businesses and entrepreneurs find NASA technology with commercial potential, then provides access to a network of business experts in marketing, sales, high-tech management and operations, financing, and patent and corporate law. The ATCC also offers low-cost office space and other start-up services.

**BizTech** <<http://www.biztech.org>>, of Huntsville, Alabama, is a small business incubator, offering participating companies access to services at Marshall Space Flight Center laboratories for feasibility testing, prototype fabrication, and advice on technology usage and

transfer. BizTech is sponsored by the Huntsville-Madison County Chamber of Commerce.

The **Emerging Technology Centers (ETC)** <<http://www.etcbaltimore.com>>, located in Baltimore, Maryland, is one of the newest NASA-affiliated incubators. Partnering institutions include the Goddard Space Flight Center and area universities and colleges.

The **Florida/NASA Business Incubation Center (FNBIC)** <<http://www.trda.org/fnbic/>> is a joint partnership of NASA's Kennedy Space Center, Brevard Community College, and the Technological Research and Development Authority. The mission of the FNBIC is to increase the number of successful technology-based small businesses originating in, developing in, or relocating to Brevard County. The FNBIC offers support facilities and programs to train and nurture new entrepreneurs in the establishment and operation of developing ventures based on NASA technology.

The **Hampton Roads Technology Incubator (HRTI)** <<http://www.hr-incubator.org>> identifies and licenses NASA Langley Research Center technologies for commercial use. The HRTI's mission is to increase the number of successful technology-based companies originating in, developing in, or relocating to the Hampton Roads area.

The **Lewis Incubator for Technology (LIFT)** <<http://www.liftinc.org>>, managed by Enterprise Development, Inc., provides outstanding resources for technology and support to businesses in the Ohio region. Its primary objectives are to create businesses and jobs in Ohio and to increase the commercial value of NASA knowledge, technology, and expertise. LIFT offers a wide range of services and facilities to the entrepreneur to increase the probability of business success.

The **Mississippi Enterprise for Technology** <<http://www.mset.org>> is sponsored by NASA and the Mississippi University Consortium and Department of Economic and Community Development, as well as the private sector. The mission of the enterprise is to help small businesses utilize the scientific knowledge and technical expertise at the Stennis Space Center. A significant part of this effort is Stennis' Commercial Remote Sensing Program, which was formed to commercialize remote sensing, geographic information systems, and related imaging technologies.

The **NASA Commercialization Center (NCC)** <<http://www.nasaincubator.csupomona.edu>>, run by California State Polytechnic University, Pomona, is a business incubator dedicated to helping small businesses access and commercialize Jet Propulsion Laboratory and Dryden Flight Research Center technologies.

The **UH-NASA Technology Commercialization Incubator** <<http://www.research.uh.edu>> is a partnership between NASA's Johnson Space Center and the University of Houston. The incubator is designed to help local small and mid-sized Texas businesses commercialize space technology. The University of Houston houses the program and provides the commercialization and research expertise of its business and engineering faculties.

Other organizations devoted to the transfer of NASA technology are the **Research Triangle Institute (RTI)** <<http://www.rti.org>>, and the **MSU TechLink Center** <<http://techlink.msu.montana.edu>>.

**RTI**, located in Research Triangle Park, North Carolina, provides a range of technology management services to NASA. RTI performs technology assessments to determine applications and commercial potential of NASA technology, as well as market analysis, and commercialization and partnership development. RTI works closely with all of NASA's Technology Transfer Offices.

The **MSU TechLink Center**, located at Montana State University-Bozeman, was established in 1997 to match the technology needs of client companies with resources throughout NASA and the Federal laboratory system. TechLink focuses on a five-state region that includes Idaho, Montana, North Dakota, South Dakota, and Wyoming. Working closely with public, private, and university programs, TechLink provides ongoing support in the process of adapting, integrating, and commercializing NASA technology.

#### **Affiliated Organizations, Services, and Products**

To complement the specialized centers and programs sponsored by the NASA Technology Transfer Partnership program, affiliated organizations and services have been formed to strengthen NASA's commitment to U.S. businesses. Private and public sector enterprises build upon NASA's experience in technology transfer in order to help with the channeling of NASA technology into the commercial marketplace.

The **NASA Small Business Innovation Research (SBIR)** program <<http://www.sbir.nasa.gov>> provides seed money to U.S. small businesses for developing innovative concepts that meet NASA mission requirements. Each year, NASA invites small businesses to offer proposals in response to technical topics listed in the annual SBIR program solicitation. The NASA field centers negotiate and award the contracts, as well as monitor the work.

NASA's SBIR program is implemented in three phases:

- **Phase I** is the opportunity to establish the feasibility and technical merit of a proposed innovation. Selected

competitively, NASA Phase I contracts last 6 months and must remain under specific monetary limits.

- **Phase II** is the major research and development effort, which continues the most promising of the Phase I projects based on scientific and technical merit, results of Phase I, expected value to NASA, company capability, and commercial potential. Phase II places greater emphasis on the commercial value of the innovation. The contracts are usually in effect for a period of 24 months and again must not exceed specified monetary limits.

- **Phase III** is the process of completing the development of a product to make it commercially available. While the financial resources needed must be obtained from sources other than the funding set aside for the SBIR, NASA may fund Phase III activities for follow-on development or for production of an innovation for its own use.

The SBIR Management Office, located at the Goddard Space Flight Center, provides overall management and direction of the SBIR program.

The **NASA Small Business Technology Transfer (STTR)** program <<http://www.sbir.nasa.gov>> awards contracts to small businesses for cooperative research and development with a research institution through a uniform, three-phase process. The goal of Congress in establishing the STTR program was to transfer technology developed by universities and Federal laboratories to the marketplace through the entrepreneurship of a small business.

Although modeled after the SBIR program, STTR is a separate activity and is separately funded. The STTR program differs from the SBIR program in that the funding and technical scope is limited and participants must be teams of small businesses and research institutions that will conduct joint research.

The **Federal Laboratory Consortium (FLC) for Technology Transfer** <<http://www.federallabs.org>> was organized in 1974 to promote and strengthen technology transfer nationwide. More than 600 major Federal laboratories and centers, including NASA, are currently members. The mission of the FLC is twofold:

- To promote and facilitate the rapid movement of Federal laboratory research results and technologies into the mainstream of the U.S. economy.
- To use a coordinated program that meets the technology transfer support needs of FLC member laboratories, agencies, and their potential partners in the transfer process.

The **National Robotics Engineering Consortium (NREC)** <<http://www.rec.ri.cmu.edu>> is a cooperative venture among NASA, the city of Pittsburgh, the State of Pennsylvania, and Carnegie Mellon's Robotics Institute.

Its mission is to move NASA-funded robotics technology to industry. Industrial partners join the NREC with the goal of using technology to gain a greater market share, develop new niche markets, or create entirely new markets within their area of expertise.

The road to technology commercialization begins with the basic and applied research results from the work of scientists, engineers, and other technical and management personnel. The NASA **Scientific and Technical Information (STI) Program** <<http://www.sti.nasa.gov>> provides the widest appropriate dissemination of NASA's research results. The STI Program acquires, processes, archives, announces, and disseminates NASA's internal—as well as worldwide—STI.

The NASA STI Program offers users such things as Internet access to its database of over three million abstracts, online ordering of documents, and the NASA STI Help Desk for assistance in accessing STI resources and information. Free registration with the program is available through the NASA Center for AeroSpace Information.

For more than 3 decades, reporting to industry on any new, commercially significant technologies developed in the course of NASA research and development efforts

has been accomplished through the publication of *NASA Tech Briefs* <<http://www.nasatech.com>>.

The monthly magazine features innovations from NASA, industry partners, and contractors that can be applied to develop new or improved products and solve engineering or manufacturing problems. Authored by the engineers or scientists who performed the original work, the briefs cover a variety of disciplines, including computer software, mechanics, and life sciences. Most briefs offer a free supplemental technical support package, which explains the technology in greater detail and provides contact points for questions or licensing discussions.

*Aerospace Technology Innovation* <<http://nctn.hq.nasa.gov/innovation/index.html>> is published bi-monthly by the NASA Office of Aerospace Technology. Regular features include current news and opportunities in technology transfer and commercialization, aerospace technology and development, and innovative research.

*NASA Spinoff* <<http://www.sti.nasa.gov/tto/spinoff.html>> is an annual print and online publication featuring current research and development efforts, the NASA Technology Transfer Partnership Program, and successful commercial and industrial applications of NASA technology.